MATERIAL SAFETY DATA SHEET

SRM Supplier: **National Institute of Standards and Technology**
Standard Reference Materials Program
100 Bureau Drive, Mail Stop 2321
Gaithersburg, Maryland 20899

SRM Number: 3074
MSDS Number: 3074
SRM Name: Adipate and Phthalates in Methanol

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SECTION I. MATERIAL IDENTIFICATION

Material Name: Adipate and Phthalates in Methanol

Description: A unit of SRM 3074 consists of five 2 mL ampoules, each containing 1.2 mL of solution.

Other Designations: **Adipate** (*bis*(2-ethylhexyl)adipate; hexanedioic acid, bis(2-ethylhexyl) ester; diethylhexyl adipate; dioctyl adipate) and **Phthalates** in **Methanol** (methyl alcohol; wood alcohol; methyl hydroxide; carbinol; monohydroxymethane; wood spirit; wood naphtha; methylol; *Colonial Spirit**; *Columbian Spirit**; *Pyroxylic Spirit**)

Name	Chemical Formula	CAS Registry Number
Methanol	CH_3OH	67-56-1

DOT Classification: Flammable and Poisonous, UN1230

Manufacturer/Supplier: Available from a number of suppliers

*Trade name

**For the CAS Registry Numbers of the adipate and phthalates in this material, refer to the corresponding Certificate of Analysis.

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Components	Nominal Concentration (%)	Exposure Limits and Toxicity Data
Methanol	99	ACGIH TLV-TWA (skin): 200 mg/kg or 262 mg/m^3
		OSHA TLV-TWA (skin): 200 mg/kg or 262 mg/m^3
		Human, Inhalation: TC_{LO}: 86 000 mg/m^3
		Human, Oral: LD_{LO}: 143 mg/kg
		Rat, Oral: LD_{50}: 5628 mg/kg
Adipate and Phthalates*** Dimethylphthalate Diehylphthalate Di-n-bultylphthalate Benzlbutylphthalate Bis(2-ethylhexyl)adipate Bis(2-ethylhexyl)phthalate Di-n-octylphthlate		

***This material contains an adipate and phthalates**,* which have been reported to have toxic, mutagenic, and/or carcinogenic properties, and should be handled with care. The carcinogens in this material have a total concentration < 0.1 % and do not require individual MSDS information under current regulations. For actual concentrations, see the corresponding Certificate of Analysis.

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Methanol	
Appearance and Odor: a clear, colorless liquid with a characteristic alcoholic odor	**Freezing Point:** -94 °C
Relative Molecular Mass: 32.04	**Vapor Pressure (@ 20 °C):** 97.25 mm Hg
Density: 0.7914 g/mL	**Evaporation Rate (butyl acetate = 1):** 4.6
Boiling Point: 65 °C	**Water Solubility:** soluble
Viscosity (@ 20 °C): 0.59 cP	**Solvent Solubility:** soluble in ether, benzene, alcohol, acetone, chloroform, ethanol, ketones, and most other organic solvents

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Methanol
Flash Point: 11 °C **Method Used:** Closed Cup **Autoignition Temperature:** 385 °C

Flammability Limits in Air (Volume %): **UPPER:** 36
LOWER: 6.0

Unusual Fire and Explosion Hazards: Methanol is a severe fire and explosion hazard when exposed to heat or flame. Vapors are heavier than air and may travel a considerable distance to a source of ignition and flash back. Vapor and air mixtures are explosive.

Extinguishing Media: Use alcohol-resistant foam, dry chemical, carbon dioxide, or water spray.

Special Fire Procedures: Fire fighters should wear a self-contained breathing apparatus (SCBA) with a full face piece in the pressure demand or positive mode and other protective clothing.

SECTION V. REACTIVITY DATA

Stability: **__X__ Stable** **_____ Unstable**

Conditions to Avoid: Avoid contact with heat, sparks, flames, or other sources of ignition. Avoid inhalation of vapors or combustion by-products. Avoid contact with the skin. **DO NOT** allow the material to contaminate water sources.

Incompatibility (Materials to Avoid): This material is incompatible with halo carbons, combustible materials, metals, oxidizing materials, halogens, metal carbide, bases, and acids.

See Section IV**:** *Unusual Fire and Explosion Hazards*

Hazardous Decomposition or Byproducts: Thermal decomposition products of methanol may include toxic oxides of carbon.

Hazardous Polymerization: **_____ Will Occur** **__X__ Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: **X** **Inhalation** **X** **Skin** **X** **Ingestion**

Methanol: Methanol is a fatal poison. This material is harmful if inhaled or absorbed through skin. Ingestion may be fatal or cause blindness. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Exposure can cause damage to the eyes, liver, heart, and kidneys. Methanol may also cause gastrointestinal disturbances, convulsions, and/or nerve damage.

Adipate: Ingestion of adipate may cause diarrhea. Chronic exposure in the diet of mice produced a significant increase in the incidence of liver cell tumors. Other effects reported in experimental animals include increased liver weights and depressed cholesterol levels.

Phthalates: Inhalation of vapors may cause irritation of the nose and throat with coughing, difficulty breathing, and chest discomfort. High concentrations may cause central nervous system depression.

Medical Conditions Generally Aggravated by Exposure: Methanol may affect eye disorders, kidney disorders, skin disorders, and allergies; **Chloral hydrate** may affect allergies, eye abnormalities, kidney, liver, respiratory, and skin disorders.

Listed as a Carcinogen/Potential Carcinogen (Methanol):

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens		X
In the International Agency for Research on Cancer (IARC) Monographs		X
By the Occupational Safety and Health Administration (OSHA)		X

Listed as a Carcinogen/Potential Carcinogen (Adipate):

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens		X
In the International Agency for Research on Cancer (IARC) Monographs		X
By the Occupational Safety and Health Administration (OSHA)		X

Listed as a Carcinogen/Potential Carcinogen (Phthalates):

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens	*	*
In the International Agency for Research on Cancer (IARC) Monographs	*	*
By the Occupational Safety and Health Administration (OSHA)	*	*

*Many phthalates are considered potential carconogens.

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Watch for chemical irritations and treat them accordingly. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance.

Inhalation: If inhaled, move the victim to fresh air. If breathing is difficult, give oxygen; if the victim is not breathing, give artificial respiration. Obtain medical assistance if necessary.

Ingestion: If ingested, wash out mouth with water. Obtain medical assistance immediately.

TARGET ORGAN(S) OF ATTACK: **Methanol:** central nervous system (CNS)
Phthalates: central nervous system (CNS)

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Notify safety personnel of major spills and/or leaks. Evacuate nonessential personnel. Stop the leak if one can do so without risk. Absorb small spills with sand or other absorbent material and place into containers for disposal.

Waste Disposal: Follow all federal, state, and local laws governing disposal.

Handling and Storage: Persons handling this material must wear protective eyewear, clothing, and gloves to prevent contact with this material.

> **NOTE:** Contact lenses pose a special problem; soft lenses may absorb irritants and all lenses concentrate them. **DO NOT** wear contact lenses in the laboratory.

This material should be stored in a cool, dry, well-ventilated area away from incompatible materials and conditions. Protect containers from physical damage.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources:
MDL Information Systems, Inc., MSDS *Diethyl Phthalate*, 22 March 2001.
MDL Information Systems, Inc., MSDS *Diethyl Phthalate*, 22 March 2001.
MDL Information Systems, Inc., MSDS *Di(2-Ethylhexyl) Adipate*, 22 March 2001.
MDL Information Systems, Inc., MSDS *Methyl Alcohol, 22 March 2001.*
Merck Index, 11th Ed., 1989.
The Sigma Aldrich Library of Chemical Safety Data, Ed. II, 1988.